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ABSTRACT

This paper begins with a short description of the British Open University which covers the programs of study (undergraduate, continuing education, and higher degrees); mediums of teaching (correspondence texts, broadcast television, audiocassettes, radio, face-to-face or telephone tutorials, audioconferencing, summer schools, home experiment kits, and home computers); teaching staff, regional services, and administration; income and expenditures; and external recognition. A general discussion of distance education considers criteria defining distance education and open learning systems, important characteristics of distance education--student autonomy and provision of a complete learning experience--and ideological issues in the way distance education is provided. The spread of distance education and reasons for its growing popularity are also addressed. Important developments at the Open University are then described: (1) a coherent and balanced program leading to a recognized degree; (2) the continuing education program; (3) high quality teaching materials designed for independent distance learners; (4) an extensive student support service; (5) involvement with other educational institutions in Britain; and (6) extensive use of technology. Lessons learned from the Open University are presented, and the paper concludes with discussion of the future of distance education which focuses on extended vocational and continuing education programs, technology, course design, internationalization, and new organizations for provision of distance education. Three references are listed. (MES)

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EXPERIENCES FROM THE BRITISH OPEN UNIVERSITY

AND

POINTERS TO THE FUTURE

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6th April, 1988

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Distance education and the British Open University

I have worked at the Open University now for 19 years, and have also had the good fortune to visit many other distance teaching institutions in Europe, Canada, Australia and Asia. Two things have struck me. The first is that every successful distance education system is different from any other, reflecting the importance of adopting structures and systems appropriate to the unique national or provincial context. The second has hit me much more recently, and seems almost to contradict the first: no matter how different individual institutions are from one another, there seem to be certain common fundamental features of any successful distance education system.

While the Open University is, by most people's criteria, an example of a highly successful distance education institution, it is unlikely to be a suitable model for another country; at the same time, there seems to me to be certain features of the Open University that are likely to be found in any successful distance education institution.

This means then that I should briefly describe the main characteristics, first of the Open University itself, then of distance education generally.

A short description of the British Open University

The Open University was created by Royal Charter in 1969 and the first students enrolled in 1971. In 1969 (as now) access to higher education opportunities in Britain was highly restricted. Only 8% of an age-group went on to University, and only 15% of an age-group went on to any form of higher education. The Open University was created to give to all those that wanted a higher education a chance to study, in their own time, in their own homes, without having to leave their jobs or their families. Thus the University has an open-access policy; no formal qualifications are necessary in order to register as an Open University student. The University operates on a "first-come-first-served" principle, with some attempt to balance numbers across the different regions.

The Open University offers three programmes of study:

(a) The *Undergraduate* programme, which involves study over a number of years, typically five or six, and leads to the degree of Bachelor of Arts or further to a BA with honours. At present there are more than 130 undergraduate courses, across seven faculties: Arts, Social Sciences, Maths, Science, Technology and the Schools of Education and Management. Many courses are inter-disciplinary and are jointly produced by more than one faculty. In any one year, about 20,000 new students register for the foundation courses, and the total of registered undergraduate students in 1987 was 65,000. About 40% of any year's intake will go on to graduate eventually (roughly 8,000 per year). Altogether, 85,000 students have now acquired a BA, of which 12,000 have carried on to acquire honours. The undergraduate programme is largely financed by the government through a direct grant tc the University, but 15% of the cost of a full credit course is payed by the student. The student fee for a full credit course in 1988 is £166. Students need six credits for a general degree, and eight for an honours, of which at least two credits must be at an advanced level. A credit is roughly 400 hours study, spread out over 32 weeks, from February to October. Many courses are half-credits, i.e. 16 weeks study spread over 32 weeks. A course then might have 16 or 32 *units*, each unit representing one week's study of approximately 12 hours in total. Students are assessed both continuously, through tutor marked assignments (roughly one a month), and through a supervised examination at the end of the course.

(b) The *continuing education* programme, which offers a variety of single courses, both on academic subjects and vocational up-dating and professional training, as well as self-contained learning packages and short courses on matters of everyday concern. At present there are more than 200 packs and courses, including 115 courses from the undergraduate programme which can be studied singly. Altogether, the number of students in the CE programme in 1988 is over 75,000. Continuing education courses are self-financing, either from student fees or from sponsoring funds. Short study packs (covering perhaps just four weeks' study), may cost students as little as £10, while longer courses may cost anywhere between £120 to £450. Courses may be booked for groups as well as individuals, and/or used for in-house training by a company.

(c) The *higher degrees* programme, which provides opportunities for both

taught and research-based postgraduate study leading to a higher degree (B.Phil., M.Phil., and Ph.D.). In 1987 there were 1,100 higher degree students. Altogether, just over 400 higher degrees have been awarded.

The main medium of teaching is through specially prepared correspondence *texts*, supported by *broadcast television*, *audio-cassettes*, and some *radio*. The Open University has a unique agreement with the BBC, which produces material specifically for the Open University courses, using a purpose-built production centre on the University campus. On the larger courses, and especially at foundation level, local *face-to-face tutorials* are provided, either as evening classes, or Saturday day-schools. Attendance is optional. On smaller courses, where students are more scattered or remote, *telephone tutorials*, including *audio-conferencing*, are sometimes provided. Each foundation course, and most of the science and technology courses, have one-week residential *summer schools*, and some science and technology courses have specially designed *home experiment kits*. On a small number of courses, including from 1989 the new Technology foundation course, students will have to use *home computers* conforming to a common standard specified by the Open University.

The courses are prepared by teams of academics, employed full-time on tenure by the Open University. Also on the teams are educational technologists, who advise on course design, television/radio/audio producers from the BBC, editors, and a course administrator. Sometimes external consultants are also hired, where specialist subject expertise is lacking. In the undergraduate programme, it usually takes at least two years of design before the course is first presented, then the course will normally run for at least eight years. For a foundation course, this may mean up to 50,000 students following the same course over the eight years. The headquarters at Milton Keynes employs 2,600 full-time staff, of whom 442 are academics.

The teaching is supported by an extensive regional provision. There are 13 regions, each with its own full-time administrators, responsible for recruiting and monitoring the 5,000 part-time tutors and counsellors, organising the 253 study centres located usually in other educational establishments, and the local summer schools located in conventional universities, providing advice to applicants, organising examinations, and

liaising with other educational institutions and increasingly industry in the area. Approximately 600 full-time staff are employed in the regions.

In 1987, the Open University's income over the year for the undergraduate programme was £76 million, of which £63 million came from the Department of Education and Science (i.e. the Ministry of Education), and the rest (18%) from student fees. This does not include the cost of the Continuing Education programme, which is meant to be self-financing. In 1987, the Continuing Education programme brought in another £7.8 million from student fees, course sponsorship, sales of packs, and grants for courses from various government agencies. The Continuing Education programme though is indirectly subsidised, in that it makes additional use of facilities already provided for the undergraduate programme.

Income and expenditure for 1987 are made up as follows:

	Income (£)	%		Expenditure (£)	%
Grant from DES	62,941,000	82	Faculties (inc.research)	18,740,000	24
Fee income	13,209,000	18	Academic support	2,842,000	04
			Operations	8,333,000	11
			Regions	15,765,000	21
			BBC	9,464,000	12
			Central administration	12,166,000	16
			Estates/facilities	6,297,000	08
			Other expenditure	2,543,000	04
Total	76,150,000	100		76,150,000	100

With regard to external recognition, the Open University has the same legal status as all other universities in Britain, through a Charter issued by the Queen in Council. It also has the same academic conditions of service as other universities. Academic staff have time and facilities for doing research, as well as teaching. The Open University also has a rigorous system of external assessment of its teaching materials. Each course has a course assessor from another university, and most units also have independent external assessors. Each examining board for each course has an external

examiner from another university. Staff from other universities are also used as part-time and summer school tutors. The Open University's teaching is public. The programmes are seen on national television and the texts are available in local bookshops. Students who obtain credits in an approved combination of courses are recognised for membership of professional societies. Lastly, research on Open University graduates suggests that employers are increasingly recognising the value of an Open University degree for purposes of recruitment, internal promotion, and salary increases (e.g. see Woodley, 1987).

Open learning, distance education, and off-campus teaching

It is important to realise that there is a strong set of ideals or views about the learning process embodied in the concept of distance education. Furthermore, although many people do use the terms inter-changeably, and although there are no standardised or authorised definitions, there are distinct differences emerging between the terms 'distance education', 'open-learning' and 'off-campus' teaching.

There are several definitions of *distance education*. For instance, Keegan (1980) defines certain essential criteria for distance education:

a. separation of student and teacher

b. influence of an educational organisation, especially in the planning and preparation of materials

c. use of technical media (including print)

d. provision of two-way communication between student and teacher

e. the use of industrialised methods in the preparation, production and delivery of learning materials

f. possibility of occasional face-to-face contact between students and tutors.

Distance learning may take place primarily at home, at local centres or increasingly at the work-place.

Open learning systems are characterised by flexibility, and in particular by the attempt to remove barriers to educational access. Thus the term may be used to describe systems that require no prior qualifications, or which are offered in ways that are more convenient to adult learners, such as different times and patterns of study from conventional education. Open learning may be based primarily on face-to-face provision, and hence is not necessarily synonymous with distance education; similarly, a distance education system may still require university entrance qualifications, and would therefore not be an open learning system (e.g. the Fernuniversität in West Germany); or a distance education system may also be open - as is the British Open University.

I do not consider *off-campus teaching*, where course delivery is primarily face-to-face, delivered by peripatetic teachers from the central campus, or by local tutors, supported by lecture notes or set reading, to be 'true' distance education, because it does not meet several of the criteria above. Truly open, distance education systems will place heavy emphasis on home-based learning, since this provides most adults with the most flexible means of studying. It should be noted that over 80% of all distance learners world-wide live within easy reach of major towns and cities. Geographical proximity to a conventional campus is not the main barrier to adult education; cost, convenience and timing are much more important. It is worth noting for instance that although the Open University has an elaborate network of local study centres all over Britain, 25% of our students never attend local centres; 25% attend regularly; and the rest occasionally. For *some* students, face-to-face contact with a tutor (or often more importantly, with other students) is essential; for others, compulsory attendance at a local centre would be a major barrier to study. I leave it to the reader to decide whether Swedish off-campus provision meets my definition of an open, distance learning system.

Two particularly important characteristics of distance education seem to me to have become clearly recognised recently, and have already influenced profoundly the development of successful distance education institutions.

The first is *student autonomy*. The emphasis here is on enabling students themselves not only to control their own learning activities, in terms of time, media used, and location of study, but also in providing students with a wide range and possible combination of subjects to meet a wide variety of individual needs. There is a recognition here of the need of adults in particular to take as much control as possible over their own learning, but guided and assisted wherever possible by the distance learning institution. The second is a realisation that the distance teaching institution is responsible not just for defining and delivering curriculum materials, and assessing student performance, but also for providing *a complete learning experience*. This will include tuition, counselling, support for student organisations and social contact between students (even if at a distance), and a coherent range of courses. There are of course major cost implications in providing such facilities; however, there are also major implications for completion and drop-out rates if they are *not* available. There are also implications for the choice and use of media; certain media are much more accessible and controllable by students than others, a point I will return to later.

The move towards greater student autonomy and the provision of a rich and varied total learning experience, even if at a distance, reflect an attempt to make distance education institutions more student centred. Too much distance education provision is still determined by institutional needs; in other words, what is offered reflects the priorities and commitment of departments within existing, conventional, institutions rather than the needs of distance learners.

It is important to realise that there are important ideological issues implicit in the way distance education is provided. Some governments may look to it as a cheap alternative to conventional education, or as a way of privatising a section of education; others may see distance education as a means of equalising opportunities and providing a high degree of satisfaction in the experience of learning as an adult, as well as providing chances for career development or a more highly qualified work-force. The way distance education is organised and funded then carries with it implicit values about the nature and purpose of adult education.

The spread of distance education

The spread of distance learning is perhaps the most significant development in education in the last 20 years. There are now 11 Western European countries offering distance education at a university level; Sukhothaithammithirat Open University in Thailand has about 200,000 students; the Chinese Central Television University has over 300,000, and is aiming to have 2.5 million students by 1992. There are large distance teaching institutions in Pakistan, Indonesia, and new institutions established or being established in India and Japan. South Korea and the Soviet Union have extensive systems of distance education, also. There are many varieties of distance education, each adapted to national structures and needs.

There are several reasons for the spreading popularity of distance education. First is the changing nature of work. Because of rapid developments in technology, the idea of being trained as a youth for the same job for life - as, for example, through the apprenticeship system - is becoming less and less tenable. Most people are likely to change careers at least two or three times. Within a particular job, the need for continuing education is rapidly increasing, and this is especially true for already highly qualified professionals, in the fields of engineering, management, the medical professions, electronics, and communications.

Job mobility is increasing, especially across provincial frontiers. A self-employed professional or an employee of a large company in Sweden can increasingly expect to move around Europe or even North America and Japan. This makes the provision of continuing education difficult through traditional means, if at one time you are in Tokyo, a year later in Houston, and the next back in Stockholm. Lastly, because training is costly, efforts are being made to find more cost-effective ways to train.

For the last 50 years, there have been three main methods of adult education and training: State-organised campus-based teaching; on-the-job 'apprenticeship' (essentially learning as you go); and company-organised, in-house training (seminars/courses). These three methods are all primarily based on personal contact between teacher and taught, and are hence time and place dependent. They are all also costly. As well as the cost of the

teaching, there is the loss of productivity while the learner is away from the job, and in the case of in-company training, there are also often high travel and accommodation costs.

IBM estimates that US$40 billion a year is now spent annually by industry in North America on continuing education - more than the total spent on the whole of the private and public university systems (Longworth, 1987). It is not surprising then that both in the USA and in Europe, distance education organisations are increasingly moving into the area of continuing education and training, particularly in management and the professional up-dating of technologists. For instance, at the British Open University, there are now more continuing education than undergraduate students (75,000 continuing education; 65,000 undergraduate); the Open University has just started an Open Business School. It is in the commercial and industrial interest of a nation that comprehensive, flexible and high-standard continuing education is available at a distance, above all provided in a coherent manner so that there is some continuity in an individual's professional development.

Furthermore, distance teaching at an undergraduate level has proved popular with adults. Many distance teaching institutions' undergraduate programmes are oversubscribed. The Open University each year has over 50,000 applicants for 20,000 new places, even after nearly 20 years. Adults like the flexibility and the materials specially designed for distance study purposes, the intellectual challenge, and the discipline of working towards a degree, but within their own time constraints.

The success of distance education then is not in dispute. What I want to discuss is the way it is developing, and where it is likely to go over the next 10 years.

Major developments at the OU

The selection of important developments at the British Open University is bound to be idiosyncratic to some extent. Some indeed are not so much developments as essential features built in to the origins of the University.

I shall start by being very conservative, and state that one of the most

important features has been the provision of a coherent and balanced degree programme, leading to a recognised qualification. The importance of this to students cannot be overemphasised. Many distance education systems are simply not large enough or flexible enough to offer a full degree profile at a distance, and I will return to this later.

The second major development which has reached full fruition only in recent years has been the 'continuing education' programme. This programme has been developed on a self-financing basis, and while the undergraduate programme has been limited to a total of 65,000 students at any one time, the continuing education programme is not so restricted, and is growing rapidly each year. The need to be self-financing has led not only to the development of alternative forms of course design and presentation, but has also allowed the University to respond to government initiatives and market demands. By being self-financing, and in particular by developing courses in business, applied technology and manufacturing, this area of the University's activities has received the approval of the Conservative government, although originally it was opposed to the concept of the Open University. Nevertheless, the Continuing Education area is really dependent on the undergraduate infrastructure; if it had to cover all the overheads as well, it would be very difficult to cover all costs from income.

Another key feature of the Open University has been its development of high quality teaching materials, specially designed for independent distance learners. The core of the teaching is the print material, but strongly supported by other media, particularly audio-cassettes and television. The quality comes from the process of argument, discussion and design that accompanies the development of the teaching material. Teaching material is circulated to and commented on by all members of the team, and by paid external assessors drawn from other Universities. The written material usually goes through three different drafts before being printed.

Mention has already been made of the importance of an extensive and high quality student support service, which includes counselling, and opportunities for local contacts, as well as tutoring by correspondence and telephone.

Perhaps less well appreciated has been the way the Open University has established close involvement with other, more conventional higher education institutions in Britain. When the Open University was set up, part-time continuing education was not a high priority in conventional British universities. The Open University was therefore not seen as a competitor, since its programme was directed at a completely different target group. This situation has changed somewhat in recent years, with more conventional universities in Britain becoming interested in distance teaching, but this is still a relatively minor activity, and the Open University's 'right' to teach in this area is now well established. This has meant that over the years it has been possible for the Open University to co-operate closely, not so much with other institutions as with individual staff in other institutions. Most of the part-time tutorial staff are working full-time in conventional higher or further education, and many of the staff who teach at Open University summer schools are recruited from the host universities. A large number of educational institutions provide facilities for study centres for the Open University, and the income from the Open University summer schools is particularly welcomed by the host universities. Perhaps the most important contact though has been the use of external assessors and examiners from other universities. This has brought them into close contact not only with the academic materials, but also with student performance. Furthermore, the texts, readers, and television programmes are publicly available, and it is now common for our material to be used by both lecturers and students in conventional universities. In this way, the reputation of the university for high-quality teaching has quickly spread through the conventional university system.

Lastly, the Open University makes extensive use of technology in its teaching. Media such as television and audio-cassettes are important because they provide variety for students learning at a distance. As well as being important in terms of motivation, different media cater for students with different learning styles and approaches. The aim is to use media to complement one another, and in particular to develop different learning skills; thus print provides the basic facts, principles and arguments, and is important for developing basic comprehension; television can help teach abstract ideas through the use of concrete examples, and can also bring unique audio-visual resource material to students, which encourage the

development of skills of analysis, application and evaluation; audio-cassettes provide elaboration, the opportunity for application of skills through practice, and audio resource material, particularly discussions and inter-personal communication, for analysis; home computers, which are now just being introduced on a number of Open University courses, provide the opportunity for revision, and development of rule-based knowledge, through computer-aided instruction, and for communication with other students and tutors through electronic networking. A range of media appears to be particularly important for students entering distance education for the first time; as students become more autonomous, the need for a wide range of media appears to diminish.

Lessons from the development of the Open University

Perhaps the most important lesson is the need for strong political support over a continuing period. It takes time and considerable investment to establish a coherent system of distance education, and this needs political support across a wide spectrum, to allow for a changing political climate. In turn, this means that the system has to be able to meet a variety of needs, appealing to different political ideologies. Distance education is a broad concept. The Open University was originally created by a Socialist government to open up higher education to a much wider range of people, in an attempt to provide a more equal society. However, distance education has shown that it can be cost-effective in making higher and continuing education available to a wide range of people. Furthermore, it embodies the notion of self-help and individual development, as well as clearly having an important role to play in professional and vocational training, aspects which have appealed considerably to Conservative politicians in Britain. Nevertheless, political support can never be taken for granted, and the Open University has had to work hard to keep that political support. In particular, there is a continuous need to educate politicians about the unique costs, benefits and structural requirements of distance education.

A second lesson, related to the first, is the need to provide for a coherent and comprehensive package of distance education courses. Unless students can choose from a wide range of distance education courses, and create coherent profiles of courses at all the levels needed for a full degree, there is

little incentive to enrol in distance education courses in the first place. A weakness of many distance education systems has been the failure to provide the higher-level courses at a distance needed to obtain qualifications recognised by the professional institutions. The Open University has been large enough and sufficiently well funded over a continuous period to provide such a coherent degree programme itself, but the courses available to learners do not all have to be provided by the same institution; what matters is that collectively, they add up to a coherent and comprehensive package, and that students can combine credits and courses from different institutions.

I believe it is also necessary to face up to the uncomfortable nature of the cost structure of distance education. Good quality distance education courses require high initial investment, and consequently large numbers of students to achieve low unit costs. To achieve quality distance education materials requires an industrialised model of teaching, involving specialist skills and separate stages of design, production and delivery of material. This is why the development costs of a course are so high, because they are labour intensive. In industrial terms, the high investment cost in a course is justified by the low marginal unit cost per qualifying student, achieved through the large number of students who enrol in the courses, the relatively high completion rates for each course, and the quality of the student learning. Costs of course development can be reduced, by reducing the labour input to a course, but the result tends to be lower enrolments, higher drop-out, and poorer quality of learning.

Other institutions, particularly dual-mode institutions in Canada and Australia, have developed lower cost course materials. Even at the Open University, numbers of students on higher level courses tend to be in the range of 100-300 per annum, and I believe that we ourselves need to develop different, lower-cost models of course production for such specialist courses. However, for courses aimed at students with little previous experience of higher education, and especially for students whose previous educational experiences have not been happy ones, it is essential to provide high-quality materials, including a range of media, and extensive field support in the form of correspondence tuition and counselling.

Third, it is always possible to find successful adult students for higher education courses. The more qualified students are already, the more likely they are to succeed. Adult students tend to be well motivated, and if the course is essential for job advancement, they will tolerate a good deal of inconvenience and poor teaching. It is far more difficult to reach at one end the poorly qualified adult, and at the other the well-qualified but busy professional, and it is often these two extreme groups for whom distance education offers the greatest attraction and who present the greatest challenge. For these students, it is essential to provide a study structure specially designed for working adults, and which gives the kind of support that they most need. Furthermore, these needs are likely to vary from individual to individual. There are many working adults who are discouraged or actually prevented from further study by courses dependent on regular attendance at centres or on fixed study cycles related to university terms.

Lastly, I would stress the importance of using a relatively small range of media accessible to all potential students, i.e. available to them in their homes. This limits considerably the media suitable for distance education to print, broadcasting, audio-cassettes, video-cassettes, and the telephone. On some courses concerned with teaching *about* computers, a home computer will also be important, but costly to provide. However, a range of media is important, because all media, including print, have limitations for teaching and learning. Some skills in particular are much easier to achieve through some media than others. Media do add to the costs of course production, but do also have a direct impact on the quality of learning (see Bates, 1988, for a fuller discussion of this issue).

Future developments

Gazing into a crystal ball is always a hazardous process, but there do seem to be some clear lines of development in distance education.

Perhaps the most important will be a continuation, indeed an acceleration, of the extension of distance education beyond degree provision into vocational and continuing education. This can be seen by the establishment of the Open College in Britain (concerned solely with vocational education). This will result in much closer links between distance education institutions

and industry. We are already beginning to see large companies moving into in-house distance teaching (e.g. IBM; Austin Rover). The Open University has already been contracted by a number of large companies to convert their training materials into distance education; distance education institutions can play an important role in providing distance learning materials for employees in small and medium-sized companies.

Another major area of development will be the changing use of technology in distance education. The range of technologies now coming available for distance education is increasing rapidly: video-cassettes, cable, satellite, home computing, teletext, etc. Some of these are unlikely to prove suitable for distance education, because they will not be accessible to all the target group at a price that is affordable. Nevertheless, there will be a period of considerable experimentation with many 'pilot' projects, most of which will come to nothing. Despite this, there will be certain clear trends. There will be a move towards those technologies which are not only commonly available, but which also give students more control over their learning, and which allow for individual interpretation and direct communication with other students and tutors. For instance, there is likely to be a reduction in the use of broadcast television at the Open University in favour of video-cassette distribution and use (this has already happened with regard to radio and audio-cassettes); there is likely to be increasing use made of electronic communication via home computers for electronic mail, conferencing, and access to data-bases, particularly in higher-level courses and those courses teaching about computers and information technology. At the same time, I will be surprised if we see the wide-scale application of computer-based learning, artificial intelligence, or inter-active video-discs in distance education, except for very specialised areas of industrial training.

The use of technology is likely to be linked to the development of more flexible course design. Computers combined with the telephone now allow for more direct communication between students and tutors at a distance. This will enable courses to be tailored to the needs of individual students, and will avoid the need for high-cost development of course materials: the teaching will be on-line, but at a distance. However, it should be noted that this will reverse the cost structure of distance education, to low production but high delivery costs. This kind of course has considerable advantages

where there are low student numbers, but is likely to be more suitable for 'experienced' distance education students, who already have a good knowledge base in the subject area. This is an area which needs careful monitoring, to see whether high quality can be maintained at lower cost.

Another important development will be the internationalisation of distance education, and moves towards both greater co-operation and greater competition between different distance teaching institutions. There are already several developments along these lines. The European Association of Distance Teaching Universities has recently been established, with representatives from 11 different countries, including Norway (but not Sweden). The Association is looking at areas of possible co-operation between institutions regarding joint course development, course and credit transfer, and joint technology projects. It is seeking to obtain funds from the European Commission for such projects. The Heads of State of 49 Commonwealth countries have agreed to establish a co-operative organisation for the development of distance education in Commonwealth countries, with headquarters in Vancouver, Canada. A consortium of multi-national companies has established a Programme of Advanced Continuing Education (PACE) to deliver 'state-of-the-art' courses on research developments in advanced technology to companies across Europe, primarily by satellite transmission. The European Space Agency direct broadcast satellite OLYMPUS, scheduled for launch in 1989, will be carrying a wide range of programmes provided by organisations seeking to expand distance teaching across Europe. Distance education by its nature is unlikely to be restricted by national boundaries. There is a clear message here: if domestic provision is inadequate, there is a strong possibility that provision will come from other countries.

Linked to the increasing co-operation and competition in distance education will be the development of new structures and organisations for providing distance education. I see substantial growth in small commercial companies specialising in particular kinds of distance education courses aimed at industry and commerce, and possibly exploiting a particular technology; also a growth of in-house distance training and education within large companies; and more conventional universities getting into teaching at a distance, again in specialist areas where there is a well-defined market. There are likely to

be many more failures than successes, but from this rich profusion of structures and organisations some courses will emerge with much greater flexibility, and much lower costs, than current distance education courses.

Conclusion

Distance education is no longer on trial; it has already proved that it is successful, relevant and dynamic. It is wrong to see it as a low-cost or second-best alternative to 'conventional' adult education - it is meeting real needs in the modern world.

Furthermore, there is no single 'best' model of distance education. Every country should develop its own system to match the unique structures, needs and geography of that country. Having said that, though, there are certain essentials that do need to be recognised, for a successful system of distance education: a coherent and wide-ranging set of courses; flexible study structures suited to the needs of working adults; high quality teaching material, using a range of media; substantial numbers of students, at least for courses aimed at students with little previous experience of distance education; extensive provision of tutorial and counselling services; and strong and continuing political commitment, including adequate funding.

A comprehensive system of distance education is not a cheap option, but one that a modern country cannot really afford to do without.

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